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EDITORIAL

THE OVERHEAD CHARGES IN AN ARCHITECT'S OFFICE AND THE COST OF EACH JOB—THE NEW YORK COURT HOUSE

IN running the business part of an architect's office there is probably nothing which is more difficult than to determine exactly what part of general overhead charge should be applied to the cost of each job, and in consequence, an architect cannot form a very accurate idea of what his work is actually costing him. It is very important that he should know, perhaps not the cost of each individual job, but certainly the cost of selected jobs of different classes, since no architect can continue in business and lose money on any class of work which contains a considerable proportion of the total number of jobs. Of course, it is not difficult to determine the cost of draughtsmen's time, if a time card system is kept, as it is in most offices, but almost every architect finds that his overhead expenses, that is the cost to him of doing business, would amount to at least as much as the productive draughtsmen's time. On the other hand, it is not very difficult to figure the total overhead charges in any year and it may be interesting to capitulate the items which would probably compose it. They are in the first place the rent, and the what we may call general "housekeeping" expenses, such as towel supply, ice and drinking water, telephone, and general up-keep of the office equipment. The expenses of sub-dividing office

space should also be charged against overhead, just as rent should be, but how to charge it is difficult to say; probably if the cost of equipping an office is divided into the number of years covered by the lease and added to the rent for that year, this would be fairly proportionate.

The next item of overhead is the salaries of employees not draughtsmen; such as stenographers, bookkeepers, office boys, and in a large office a desk man, telephone girl, etc. A superintendent should keep a time card just as a draughtsman does, and his work can be charged directly against each job.

The next item which is chargeable to overhead is materials, exclusive of blue prints; blue prints can be, and generally are, billed in some way which will enable their cost to be singled out and charged against each job separately, but it is entirely impracticable to know just how many pencils, or how much tracing paper is used on each job, and of course stationery, stamps, expressage and things of that sort are not used only for jobs actually under way, but for many things which are really part of the cost of doing business and yet are not any live job.

To overhead also must be charged the bad debts, just as in any other business, although the writer has not found

it a common practice to apportion bad debts to the productive jobs. Unsuccessful competitions and sketches made on the chance of getting work and not paid for, must also be considered as overhead, since they are quite as much office expenses as stationery.

Another item in overhead which in a large office amounts to a very considerable sum, and even in a small office to a very considerable proportion of the total salaries is the salaries during vacations, and these two are generally forgotten in making up the cost of doing business.

There is one other item which is very difficult to determine indeed, but which is considered in a thoroughly well organized business house, and should be, at least to some extent, considered in an architect's office, especially where an architect has at times to borrow money to carry on his work, and that is the interest loss between the time that he has paid out money on a job and the time that he is paid for doing the work, and the amount is something which could probably not be actually determined without an expenditure of bookkeeper's time too great to make it worth while; but in certain offices it has amounted to as much as 1-10 of the total commission, which represents far too great a proportion of the fee.

In the cases where the architects actually lose money on their work, it is not infrequent to find that it is because of the overhead, and not because the job has been uneconomically run in the draughting room. If an architect is to be considered in a business capacity the question of overhead must be very carefully looked after. It is exceedingly difficult, however, to prevent certain of the items above mentioned from running wild, of course such things as rent and office assistance and keeping up of offices could be determined, either by the amount of work which is actually in the office when the outlay is made or (and more probably) by expectations of future work, and these items are perhaps very carefully considered before an architect assumes obligations which will mature during a period of several years in advance of their assumption. He must not assume rent out of all proportion to his past experiences, nor on the other hand when he is moving his office or establishing a new office, can he afford to take quarters which will not permit of at least some expansion, and while there is nobody on earth who can determine just what mean should be preserved between what is at the present time adequate, and what may later prove to be uncomfortably small or excessively expensive as his work grows or decreases, the matter should at least be thought about.

The place where there is liable to be most extravagance in overhead is probably in entering into competitions and in making sketches without being paid for them; the item of bad debts is a pretty hard one to foretell, but every architect out of justice to his profession, should make every attempt, both in person and by law to collect just claims. But where an architect is a man of ability, or thinks himself to be a man of ability (and which of us is there who does not?), he will be often tempted to enter large competitions which will eat up his profits for an entire year, and yet to the average man there is no other way of making his ability known, but through the medium of these competitions, and an occasional competition spree is a very invigorating breeze blowing through the more or less routine office work.

The production of sketches which are not to be paid for, except in case of acceptance by clients, is a thing which the architect can and should limit to a very small proportion

of his overhead. Most people nowadays recognize that an architect's time is worth something, and are willing to pay at least the cost of such sketches, if the matter is properly presented to them, but this item, often one of the biggest factors in overhead, can be made negligible by declining to make sketches where no compensation is offered.

Most architects exercise considerable care in keeping the accounts of their clients with their contractors straight and plain, but are exceedingly apt to disregard the cost of work to them, assuming that if they make a profit everything is all right; or if they do not make a profit that they have done the best they can. But every architect should attempt as far as possible to eliminate unproductive work from his boards, since he will not only benefit himself but will immensely strengthen the hands of the whole profession.

THE very slow progress of the plans made by Mr. Guy Lowell, for the New York Court House, through the various boards which have to approve them before they can be proceeded with, has been watched with a great deal of interest by both the architectural profession and the public at large. The program made approval by a number of boards necessary prior to the erection of the building, and many of the competitors with whom the writer has talked felt that some less elaborate process of approval would have been not only more simple for the architect, but wiser for the city. The plans had to be approved, not only by the court house commission, but by committees of the justices of the Supreme Courts, and of the City Courts, which would be housed in the same court house, by the Board of Estimate and Apportionment, and by the Board of Aldermen. This above statement is made from memory, and may not be exact, but there were at least three, and we think five, different committees which had to pass the plans before the architect could finally be told to go ahead. And while newspaper reports would now seem to indicate that approval has been secured from all committees with some modifications of the original plans, there still seems to be no immediate prospect of the construction of the building since reports have it that no money will be appropriated this year. There have probably never been any plans for a public building in the city of New York which have excited so much controversy as these, and the bulk of the discussion in which people have taken such very violent sides, has been on the question of the appearance of a circular building, and this is and always will be a matter of opinion and not of fact. The points of fact on which there have been dispute are, we gather, first, on the question of light and air in the court rooms, a very important one; and second, on the cost. As regards the first of these points, the judges were so confused that they appointed a committee to assist them to determine the practicability of the plan, and this committee's report was entirely favorable to the plans on these points, as the report of any intelligent committee must have been, since Mr. Lowell's plan was among the very few submitted which included cross ventilation of all court rooms, and at least some light on both sides. On the second of these points it may be of interest to state that the competition program called for no limit of cost, but merely for a plan which would give the desired accommodation, and while a circular building may perhaps cost more per foot of perimeter than an angular building, the perimeter for the same area is, of course, the least possible. Again according to the newspapers, we learn that the plan has been brought within the \$10,000,000 limit of cost set by the Board of

Estimate; just how this has been accomplished is not stated, nor can we conceive how the cost of these plans could be determined without very careful detailed drawings and specifications of all the parts; such a building could unquestionably be built well for \$10,000,000, but it might easily cost twice as much if expensive marbles, decorations, etc., were used in the interior. The one very gratifying feature of the whole controversy has been that while the discussion has been acrimonious at times it does not appear to have been influenced by political considerations, and every architect will realize the possibility of very sharp differences of opinions between himself and the multitudinous members of the several committees which stand in the relation of client, even after the plans had been approved by a committee of experts acting for these committees. Thus there appears at the present time to be nothing to prevent the court house construction from being carried on to completion, and it is to be hoped that the city will very speedily appropriate money to erect it, since the rental of the present quarters is costing the city about \$1,000 a day, and these quarters are neither adequate, sanitary nor handsome, all of which the new building will most assuredly be.

ARCHITECTURAL CRITICISM

THE MANUFACTURERS' CLUB, PHILADELPHIA—THE WALLED GARDEN AT "BROOKSIDE," GREAT BARRINGTON, MASS.

THE Manufacturers' Club (Plates LXIII-LXIX), Simon & Bassett, architects, occupies a site at the northwest corner of Broad and Walnut Streets, Philadelphia, Pa., with a frontage on Broad Street of 96' 11" and a depth on Walnut and Moravian Streets, of 100' 2½", with the party line to the west. Its three street fronts give rare opportunity for ample light and ventilation. For these reasons the stairs and elevators were located along the western party line and the entire street frontages utilized.

Italian Renaissance style of architecture was used for the exterior of the building and for practically all of the important rooms. Broad Street, because of its width and importance, was the natural place for the main entrance which opens into a dignified marble vestibule and a spacious lobby the entire depth of the building, with the lounge on the Walnut Street side, and the reception room and cafe on the Moravian Street side. The entire first floor is paneled to the ceiling with mahogany in soft brown tones, with the plaster ornament of ceiling in low relief, decorated in lighter tones to harmonize with the mahogany.

On Walnut Street, near the party line, is the ladies' entrance leading to their reception and retiring rooms. A feature of this portion of the building is the arrangement of the elevator in connection with the ladies' entrance, which permits the use of the ladies' dining room on the tenth floor without the necessity of coming in contact with club life unless desired.

The arrangement of entrance stairs and elevators permitted of an economical and symmetrical planning of rooms throughout the entire building and, at the same time, gave the required amount of space to the auditorium on the third floor which was really the key note of the problem. This room has an area of 4,700 square feet and will seat, including the gallery, about 1,200 people.

The entire Broad Street frontage on the second floor is given over to the library, with a center lobby from the library to the stairs and elevators. On either side of the

There is one other objection to the plans which appears almost ludicrous to those who have followed the progress of the court house competition from the beginning, and that is, that its construction will involve the closing of Center and Worth Streets. This has been known since the condemnation proceedings have been instituted, it was a condition of the original program on which the competition was held, and those persons who find it objectionable have exposed their ignorance of conditions which it was their duty to have known from the very beginning, and which do not appear to be of much practical importance, since neither the vertical nor horizontal traffic on Manhattan Island at that point is congested at the present nor shows any likelihood of becoming congested.

As to the appearance of the building itself, we can understand reasonable differences of opinion. It is a tremendous experiment, and one impossible to correct if unsuccessful, but the jury which decided the competition was an extremely competent one, and its judgment has been, we believe, found to be sensible, just and fair, by a vast majority of the competitors, all of whom were thoroughly familiar with the requirements and conditions.

lobby is a large card room with a directors' room on the Walnut Street side near party line.

Above the auditorium floor is a central court made necessary to secure natural light and ventilation to the seventy-seven bedrooms and sixty-four bathrooms located on these four floors.

The eighth floor is devoted to the main banquet room and private dining rooms and the tenth floor to the ladies' and men's dining rooms. In order to obtain direct and quick service to both dining rooms, the kitchen was placed between, viz., the ninth floor. The dining rooms on the tenth floor were designed to be used as a roof garden in summer, the sash being arranged to raise the full height of the window opening, giving a colonnade effect to the side walls of these rooms.

The mechanical plant, consisting of boilers, engines, generators, pumps, ice machines, vacuum cleaner, etc., are located in the sub-basement.

Due to the number and area of the requirements in the basement it was necessary to obtain room in the adjoining building, locating the barber shop, bowling alleys, grille, kitchen, etc., in this portion, with a Turkish bath, billiard room and grille room in the basement of the club.

A monastic atmosphere was produced in the billiard and grille rooms, by the use of a cypress wainscoting, beamed ceiling and grotesque carvings treated in gray tones with the wall above the wainscoting and space between the beams in a warmer gray stippled plaster, with inlays of decorative tile borders, symbolic of the discovery and exploration of America. The floor is also of tile in small units, all of soft gray and red tones, the whole producing a unique and unusual effect.

As a whole, the Manufacturers' Club of Philadelphia is considered one of the handsomest and best equipped club-houses in the world. Irwin & Leighton of Philadelphia were the builders.

"BROOKSIDE," the country estate of Mr. William Hall Walker, covers some 500 acres of beautiful, hilly land, four-fifths of which is heavily wooded. It lies on the banks of the Housatonic River, about a mile and a half from the railroad station of Great Barrington, Mass.

Nature has supplied "Brookside" with hundreds of large pine, spruce, and maple trees, etc., and also with an inexhaustible supply of spring water flowing from the sides of a mountain, which forms a picturesque background to the property, into a lake of some ten acres and over a natural cascade into a smaller lake close by the Housatonic into which it empties.

The approach to the residence is a stately avenue of century old elms, arched forty to fifty feet over the roadway. The residence is located on a terrace 150 feet long and 50 feet wide. At the western foot of this terrace, a circular sunken garden has been built and enclosed with a high hedge of Siberian arbor vitae.

Two wings in the rear of the house form a court planted with evergreens. The walks of which are irregularly paved with flagstones covered with moss. The house being of Elizabethan style, the sunken garden, the court, and the immediate surroundings have accordingly been designed in strictly the same style of architecture.

Some 700 feet away from the house, entirely disconnected and nestled, as it were, between the hills, is a walled garden less than an acre in extent devoted to flowers and roses, which is a veritable open-air living room (Plates LVI-LXII).

This garden has two levels and is enclosed on three sides by a tapestry brick wall and on the fourth side by a loggia. The upper level is divided by a broad brick walk. On one side of the walk, against the walls, perennials have

been planted which provide, in rotation, a bloom of flowers from the middle of May to the middle of October. On the other side of the walk is a five-foot carpet of heliotrope going all around the garden.

The lower level has four central plots devoted to roses and a border of perennials against a small retaining wall. Four wall fountains, representing the play of two children, are situated in marble niches in the enclosed walls. They were executed in Tennessee marble and bronze by Mr. R. Rondoni. The loggia has a central portion which forms a tea house with conveniences for light cooking by electricity. On either side of the tea house are wings in the form of an arcade supported by Breche Violette marble columns. A circular staircase leads to the roof of the loggia, from which beautiful views of the Berkshires may be enjoyed.

North of the central portion of the loggia is a square pool with volcanic rocks and aquatic plants. In the center of this pool is a shallow, broad bowl fountain of Carrara marble in which water is allowed to play all day and night. The garden, fountains and the loggia are illuminated by electric light, and at night some very picturesque effects may be obtained by a play of the several sets of lights.

On the south side of the loggia is a vegetable garden of some two acres in extent, enclosed on three sides by a greenhouse and on the other side by a high spruce hedge. The greenhouse has not yet been completed, but on completion, the loggia will be connected by a pergola with a large palm room.

On the west side of the vegetable garden an orangerie has been planned to take care of bay trees, oranges, lemons, etc.

The planning and execution of this work, under the direction of Mr. Ferruccio Vitale, landscape architect, has produced a garden estate of exceptional charm and beauty.

ARCHITECTURE ON THE ISTHMUS OF PANAMA

BY AUSTIN W. LORD

Mr. Lord was appointed Architect to the Isthmian Canal Commission on July 1st, 1912, to design the permanent structures to be used in the maintenance of the Canal. These structures are to be built at Balboa, near Panama, at Pedro Miguel and Gatun and comprise Lock Control Houses for the Locks, Hydro-Electric Power Plant, Administration Building, quarters for officials and employees, Toro Point Light House, Ancon Hospital, and all buildings to be used in connection with the Hospital Farm, Insane Asylum, etc.

THE architectural requirements on the Isthmus offer many new and difficult problems. The conditions under which the men work and live, the exigencies of climate and the absence of any precedents to guide us in the development of these buildings devoted to so many purposes, the lack of proper building material of a character to withstand the ravages of this humid climate, were questions that had to be considered before any architectural scheme could be worked out.

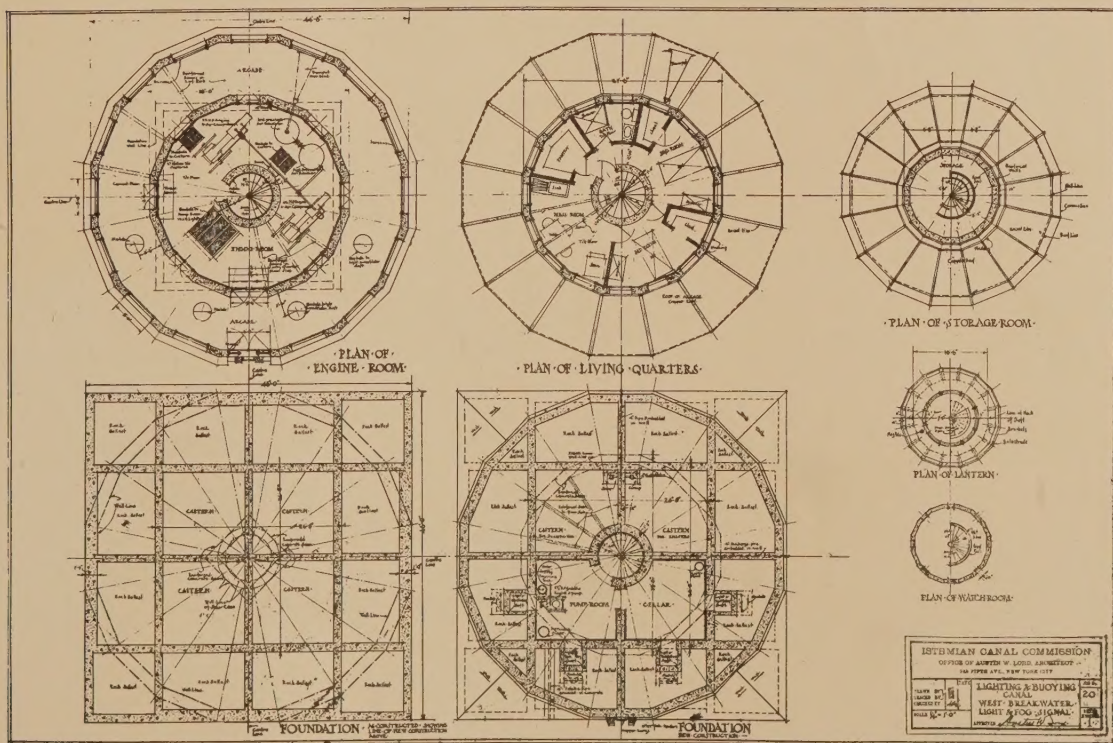
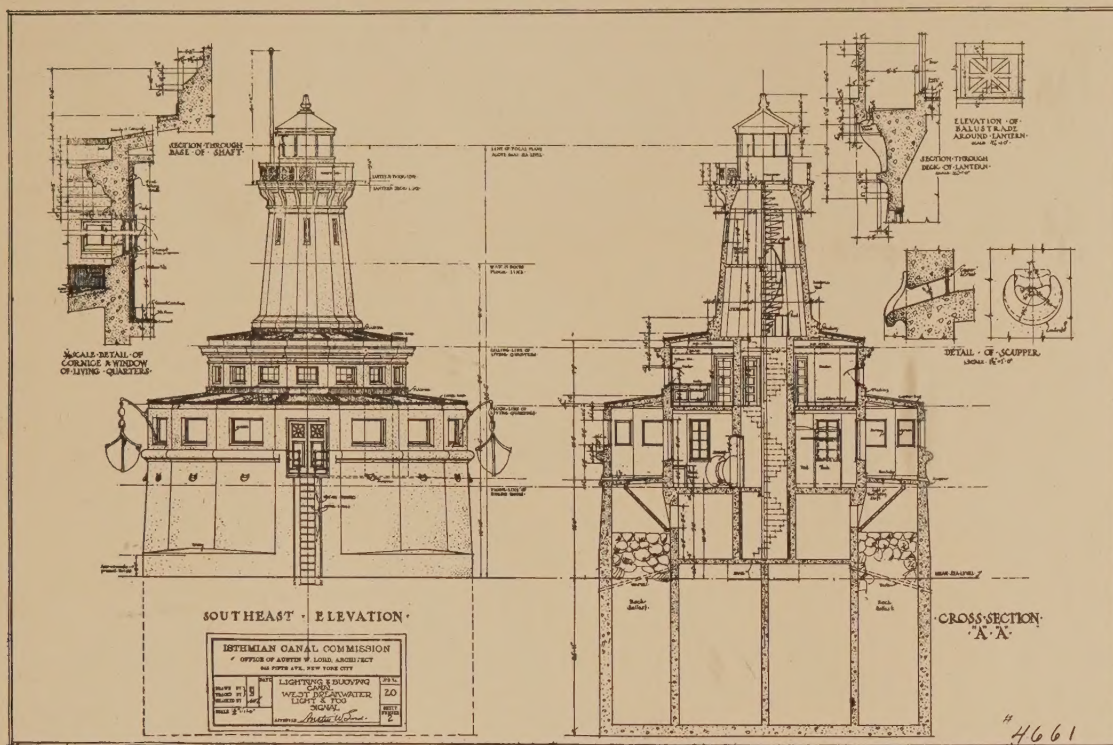
Practically all the buildings erected by the French and subsequently by the Americans for general use in the work of construction were of a temporary nature, and they not only served their purpose in the practical housing of all the interests concerned, but offered many useful lessons in the solution of the problem of the permanent structures, which are now under way.

The French architects and engineers are entitled to great credit for what they accomplished in those early days. The buildings are generally well planned and well built and formed the basis of all future temporary construction carried on after the American purchase and occupation of the Zone.

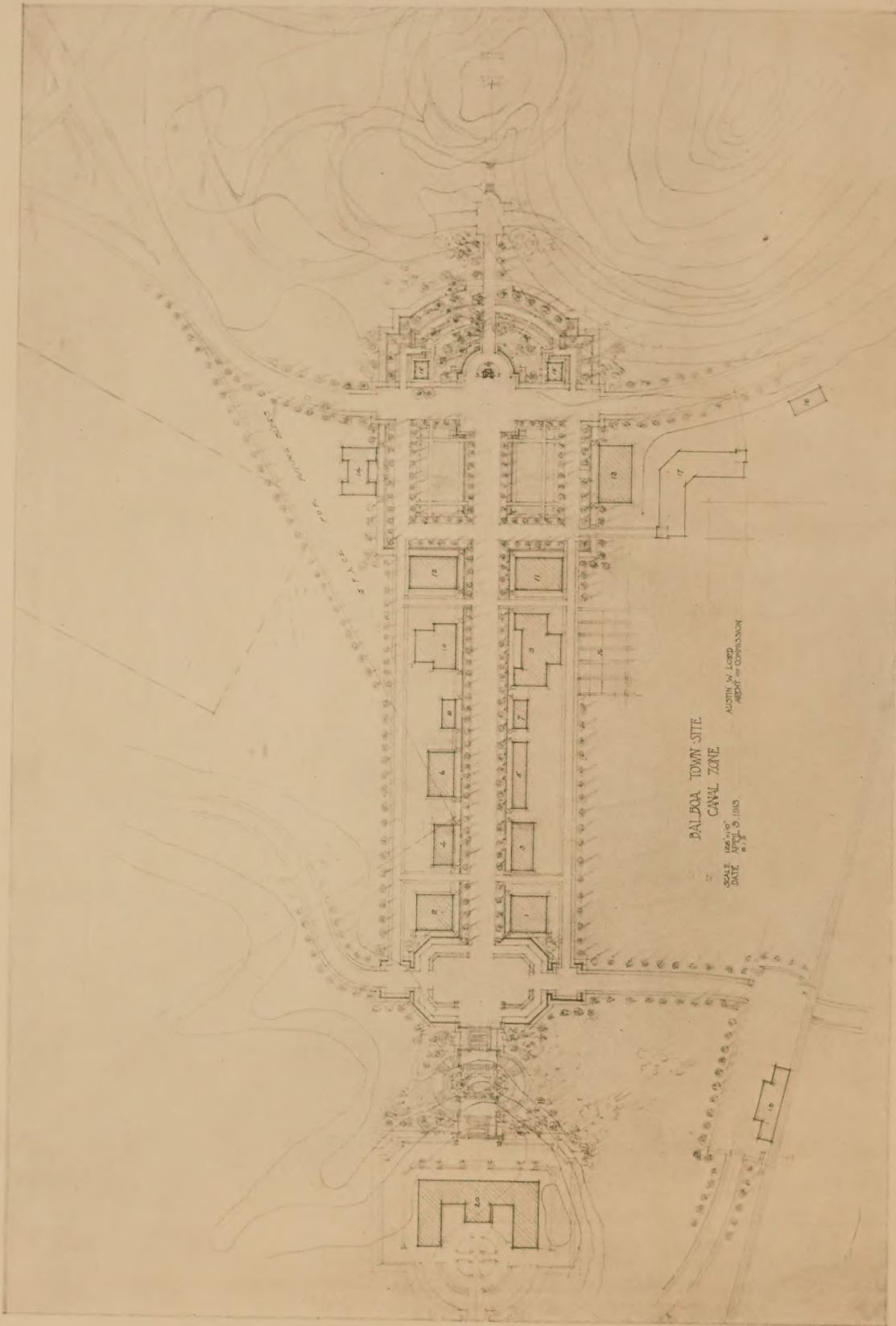
From the standpoint of sanitation the early French work was characteristically bad, but from the standpoint of general utility the early buildings of the French and the later buildings of the Americans have fulfilled their purpose. The fact is, perhaps, nowhere more marked than in the construction of the Ancon Hospital where the conditions of site offered many difficulties and at the same time many great advantages. The hospital is located on low spurs of Ancon Hill and skillful advantage is taken of the varied profiles in the disposition of paths and drives and the selection of proper sites for the various buildings. If Ancon Hospital is to be rebuilt with more permanent structures, it is likely that the lines laid down by the French will, to a great extent, be followed.

The next most important structures of a temporary sort are the quarters for the officers and men. There seems to have been little provision made by the French for the engineers and heads of departments, other than the Chief Engineer, but they did establish a type for the laborers' quarters, for commissaries, dispensaries, restaurants, barracks, police stations, railway stations, etc. After the

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ELEVATION, SECTION AND PLANS, WEST BREAKWATER LIGHT AND FOG SIGNAL AT ATLANTIC ENTRANCE, PANAMA CANAL.
Austin W. Lord, Architect.



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American occupation many of these buildings were enlarged and improved in arrangement and sanitary equipment and many new structures built in accordance with modern American requirements, such as houses for the Chief Engineer and other members of the Isthmian Commission, the one, two and four family houses, the Y. M. C. A. buildings, bachelor quarters for the whites and married quarters and barracks for the blacks. But all of these temporary buildings built subsequent to the American purchase are based more or less upon French ideas—if not in plan, then in general character of exterior and treatment of detail. These temporary structures were built of wood with tile or sheet iron roof coverings, ceiled inside with wood ceiling, painted or stained; the larger and more pretentious houses for officers and heads of departments being in most cases very well planned and built.

Of great importance on the Isthmus was the proper type of structure for: First, a one family house to cost \$4,000; Second, a one family house to cost \$6,000; Third, a two family house to cost \$7,000. Aside from the question of composition as it refers to plan and exterior, the temporary houses were not of a character best suited to the climate and perhaps the most marked failure was in the treatment of the porches. The intense heat, the high humidity and the absolute necessity of sufficient air makes the problem of the house a difficult one and in the temporary houses while great effort was made to admit the air, no proper precaution was taken to keep out the heat of the sun. It will be noted that the porches of the temporary houses are in most cases, amply wide and are provided in most instances at the first and second floor levels, but these porches are supported by very slender columns and the intervening spaces left unprotected. There is no provision against the sun's rays penetrating to the wall of the house proper, such as could have been secured by enlarging the supports of the porches, thereby decreasing the intervening spaces, and the use of adjustable blinds, shutters or screens as a protection. This provision, however, would fail to give the necessary relief unless the orientation was such as to place the principal rooms on the shady side and the structure in a position to receive the benefit of the prevailing breezes.

Contrary to general opinion, it was impossible to adopt the type of architecture of southern climes—particularly of Mexico. While great wall spaces and small openings are desirable both from the standpoint of protection from the heat, and architectural effect, this system of building would not answer the purpose on the Isthmus where conditions of heat and humidity are much worse than in Mexico and where, owing to the uses to which the structures are put, the maximum amount of light and air is required and at the same time adequate protection from the rays of the sun. The problem thus became one of the proper orientation of the buildings, and had we followed this question of orientation to its limit it would have meant endless types of buildings which, owing to expense of construction would have been impossible. So that even at the best only a portion of the permanent quarters on the Isthmus will be exactly suited to the purposes for which they are built, (particularly where such structures are placed on the spurs of hills, such as Ancon and Sosa Hills and the high ground at Pedro Miguel and Gatun Locks), for the reason that the direction of the hills constantly changes the orientation of the houses. With proper planting, however, and slight adjustment in the treatment of porches and overhanging

roofs these conditions can be, to a certain extent, overcome.

For the one family \$4,000 houses, two types are presented: A and A-1. Type A is planned for a practically level site, and Type A-1 for the steeper grades, which permits of a portion of the basement being utilized. Type A provides on the first floor a living room, dining room, two bedrooms, kitchen and servant's room and two baths.

In the one story houses it was considered that sufficient protection could be given to the walls by a wide projection of the eaves, except possibly on the side where the sun—during certain hours of the day—is the hottest, it being the aim always to provide porch protection on at least one side of the living room and bedrooms. Type A, being square in plan, could be easily adjusted to the directions of the hills so as to keep the main porch always on the hottest side of the house.

In Type A-1, designed for the steeper grades, the same general treatment of porches is adhered to and the principal basement windows are protected from the sun by a balcony. In this plan the servants' quarters are placed below, with additional bedroom space.

The \$6,000 one family house—or Type B—provides a living room, dining room, three bedrooms, kitchen, servants' quarters and two baths.

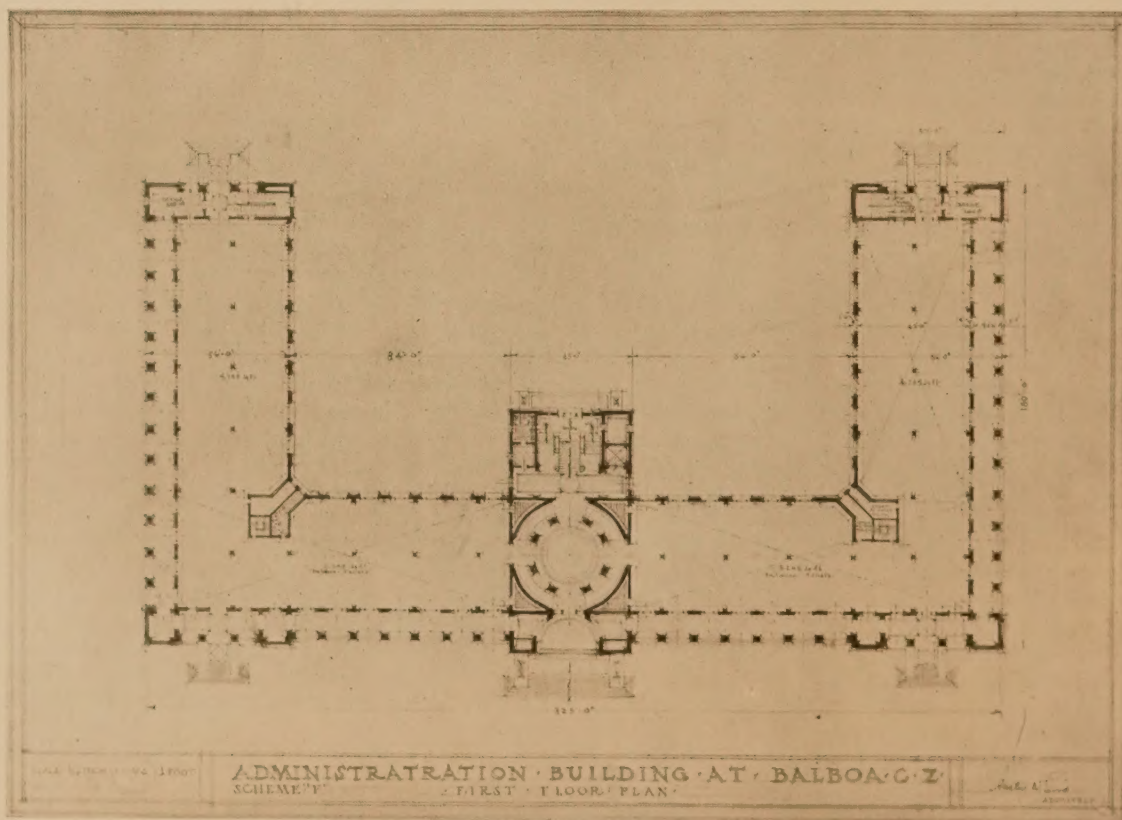
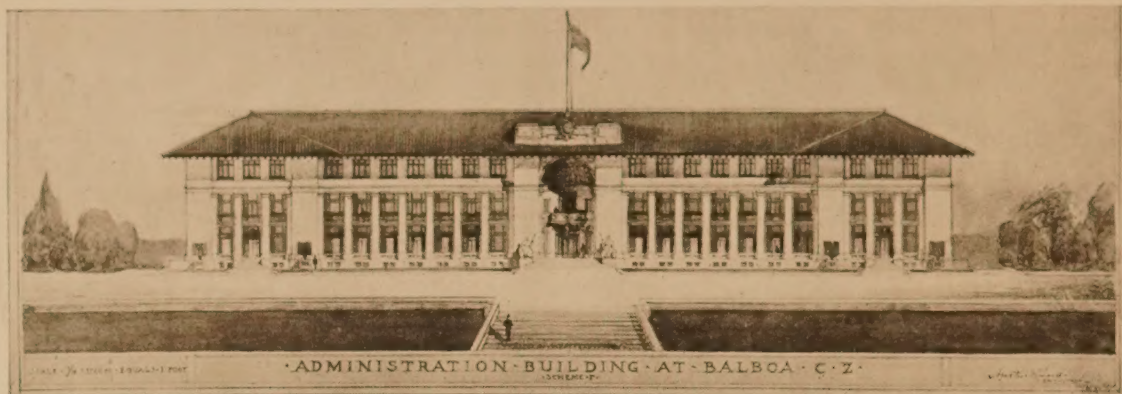
The \$7,000 two family house—Type C—is essentially a combination of two houses of the \$4,000 type and is designed for practically level areas. The great demand for space in these houses and the low limit of cost necessitated the reduction of the porch space as ordinarily provided in the first temporary structures on the Isthmus. With the introduction, however, of the hollow concrete block walls, the wide overhanging eaves and the proper orientation of the houses they will offer all the comforts of any well designed American cottage.

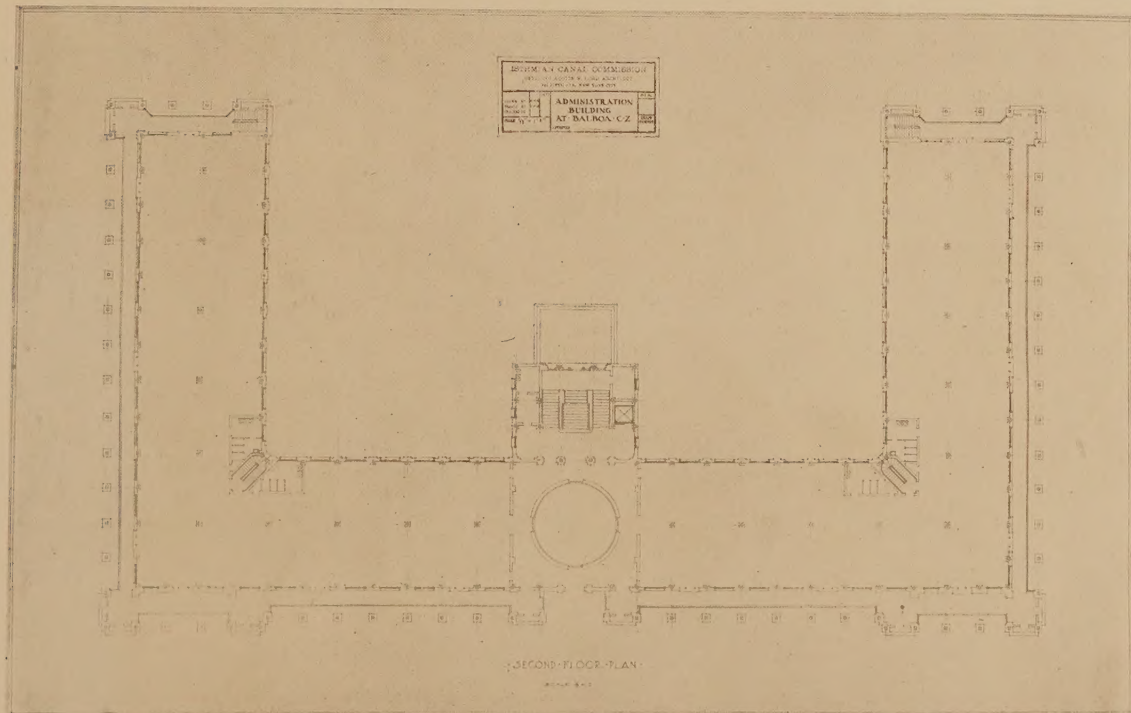
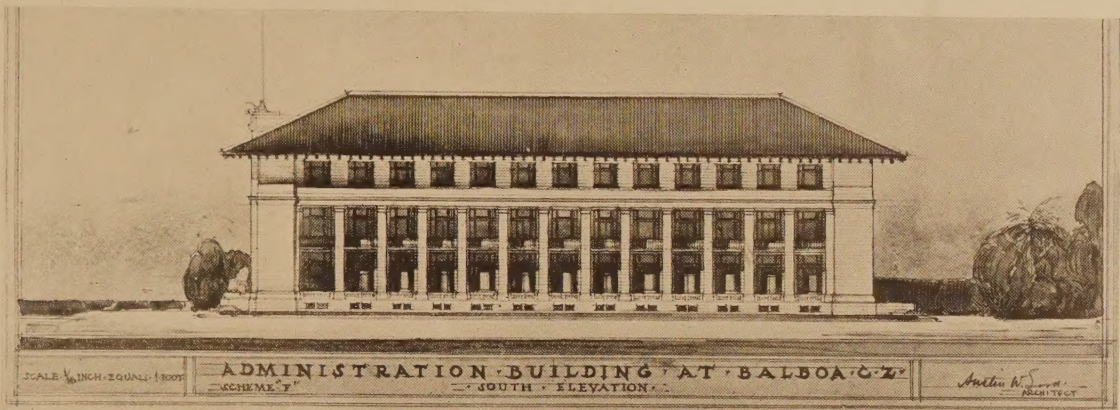
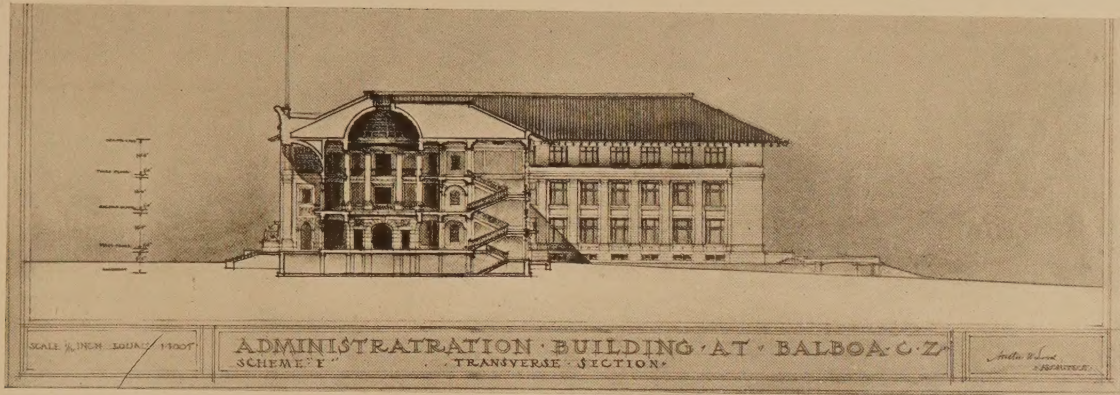
It will be noted that in all cases the living room and dining room are protected by porches, either at the side or at the end of the room; that never more than one wall of these rooms is directly exposed to the sun at the same time; that provision is made for cross draft through the house; that kitchens in all cases are separated by the intervening pantry and that in each house a drying closet, where wearing apparel is placed to protect it from mildew, is provided.

It is proposed to build eight structures costing about \$15,000 each for officials charged with the administration of the Canal. These structures are practically identical in plan, with kitchen, laundry and servants' quarters placed in an extension. In the second story four chambers are provided with loggia space and it is considered that with the introduction of the loggia and the wide overhanging eaves, together with hollow masonry walls, ample protection will be provided from the heat of the sun. In this connection it is of interest to note that in the officers' quarters, as at present constructed on the Isthmus, use has been made of the second story porches by making these porches actually a part of the rooms, except perhaps on the side of the house most exposed to the sun, so it has been assumed that in the permanent structures the actual porch space on the second floor would be curtailed over what was provided in the temporary structures.

For the Governor's house an allowance of \$25,000 was made, and the same general principal has been followed in the disposition of the rooms and their protection by porches and arcades. In this structure a more decided Italian type of architecture has been introduced as the size and general

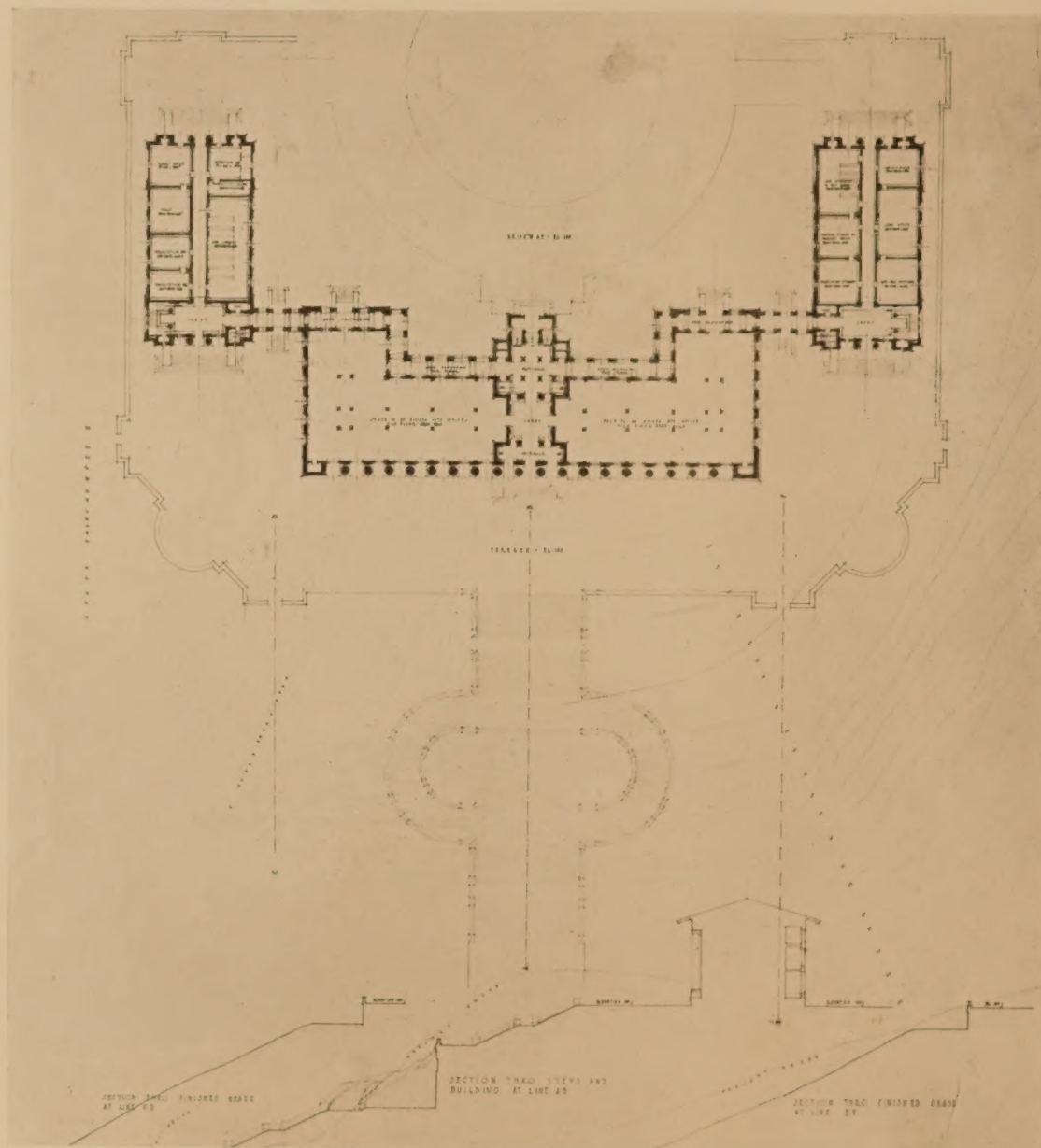
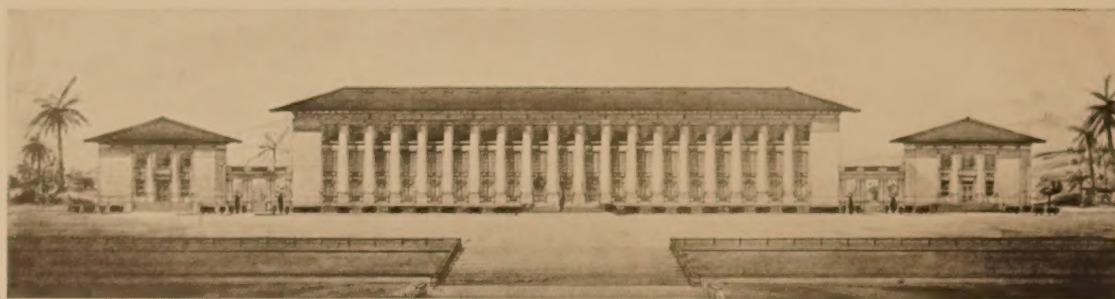
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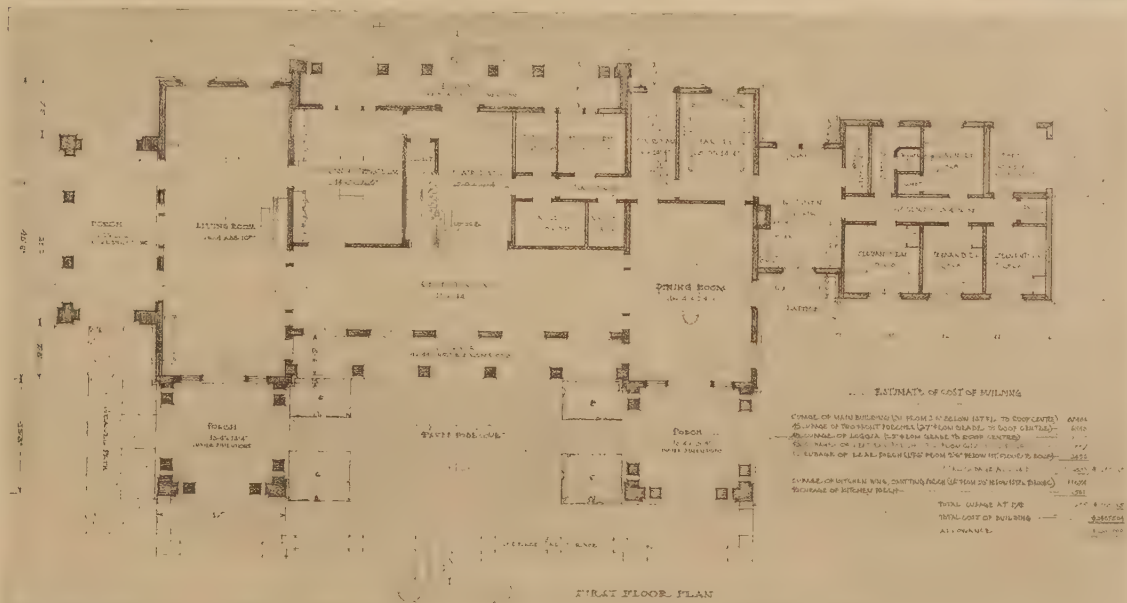
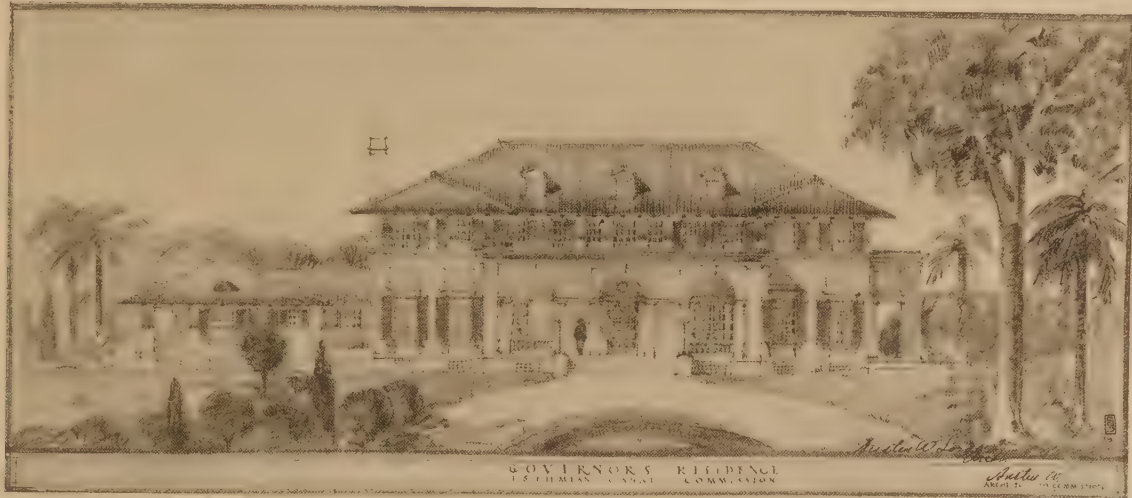
SECTION, SIDE ELEVATION AND SECOND FLOOR PLAN, ADMINISTRATION BUILDING, BALBOA, C. Z.

Austin W. Lord, Architect.



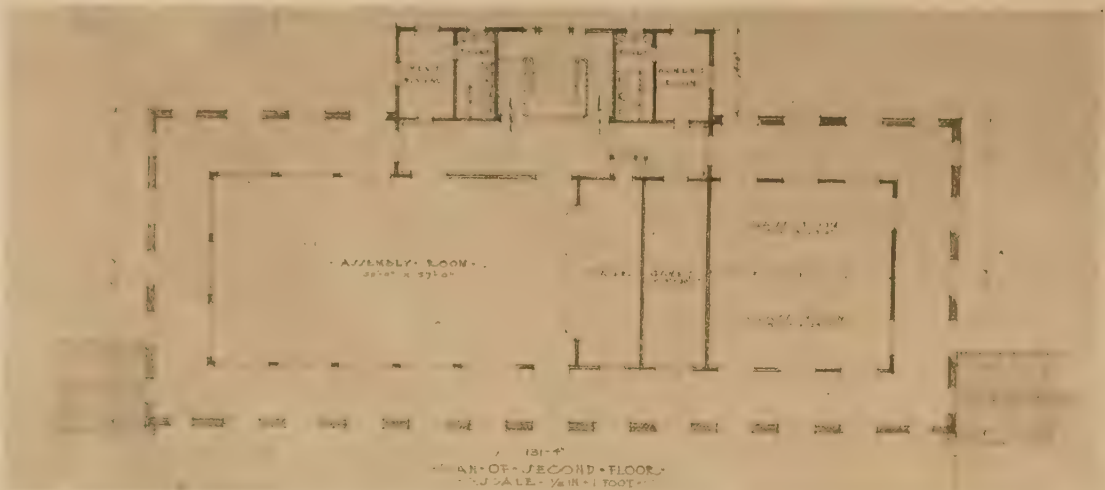
PRELIMINARY PLAN AND ELEVATION, ADMINISTRATION BUILDING, BALBOA, C. Z.

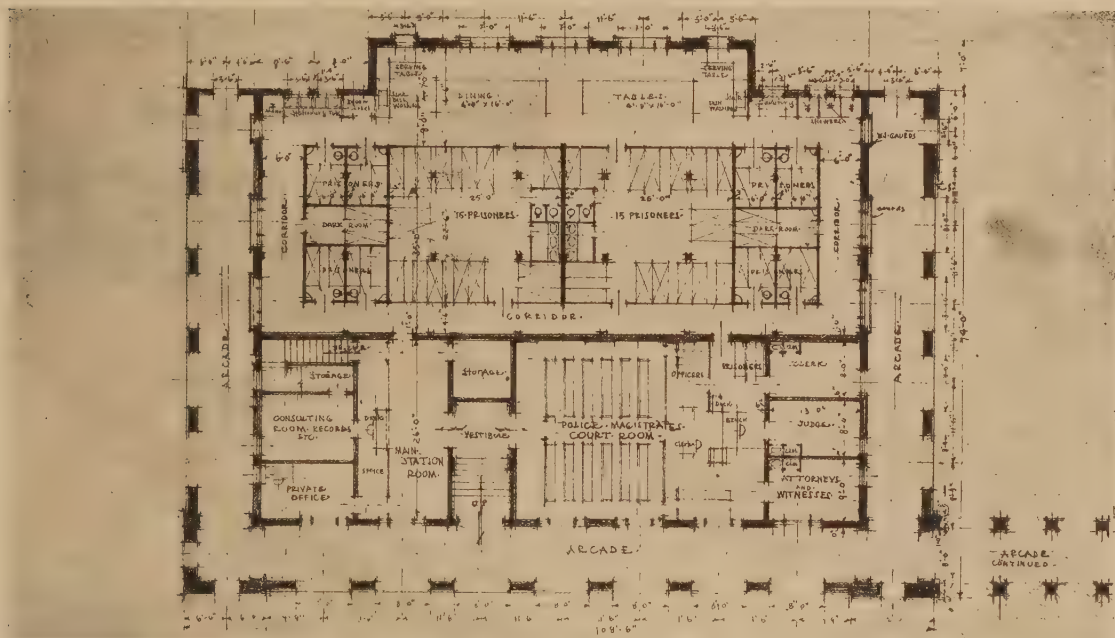
Austin W. Lord, Architect.



ELEVATION AND PLANS, GOVERNOR'S RESIDENCE, BALBOA, C. Z.

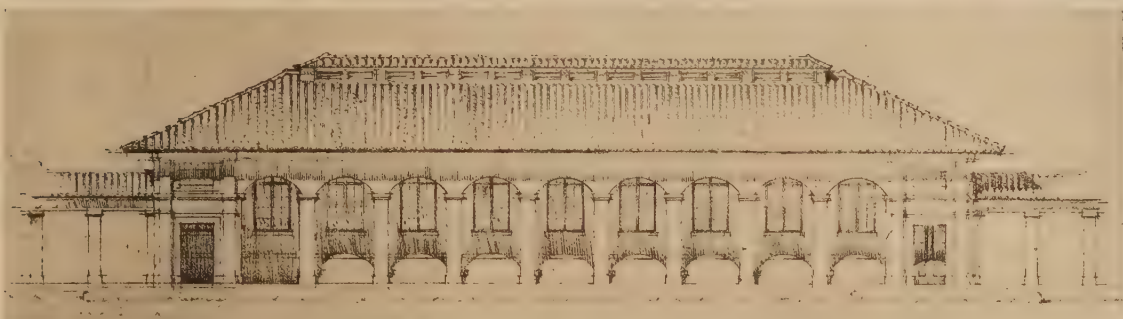
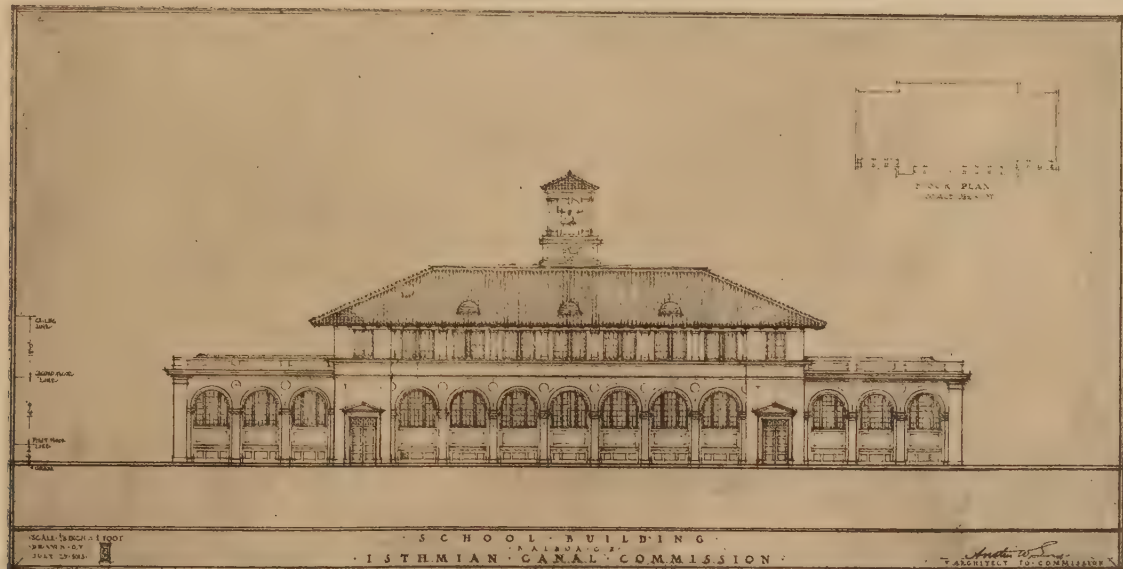
Austin W. Lord, Architect.





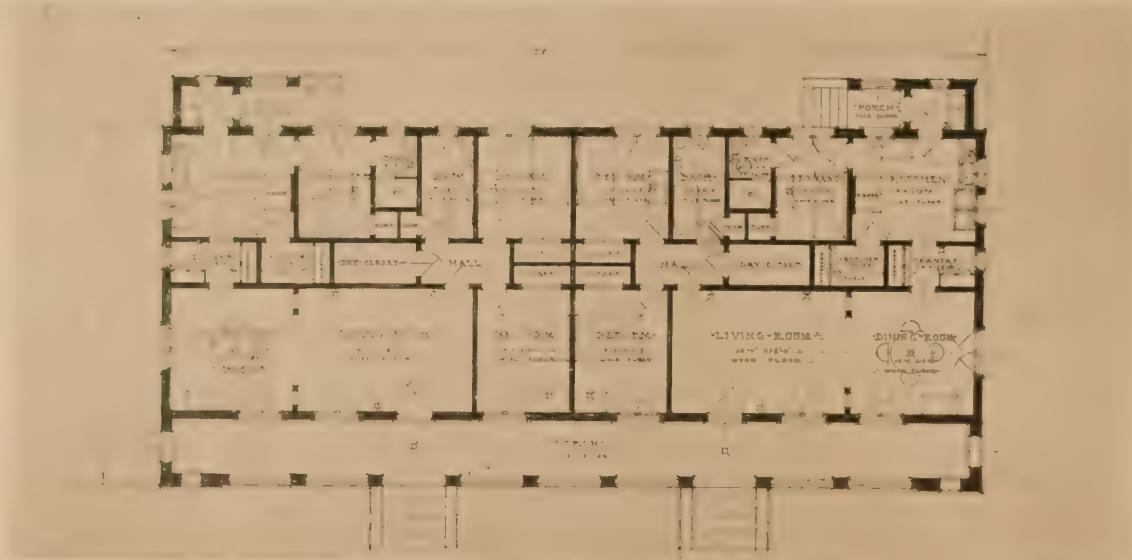
ALTERNATE ELEVATIONS AND PLAN, POLICE STATION, BALBOA, C. Z.

Austin W. Lord, Architect.

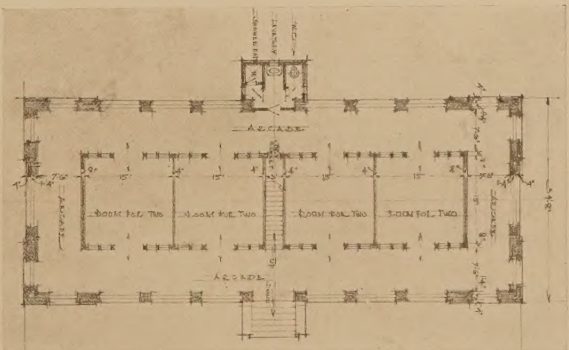
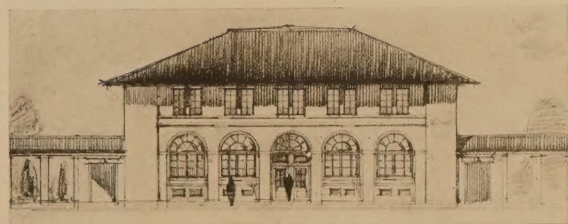
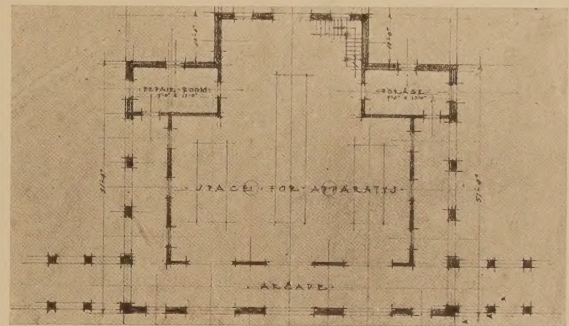
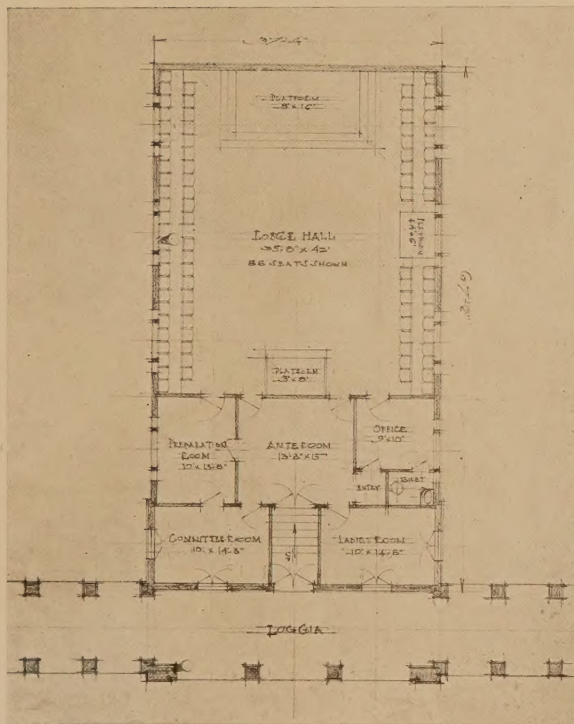
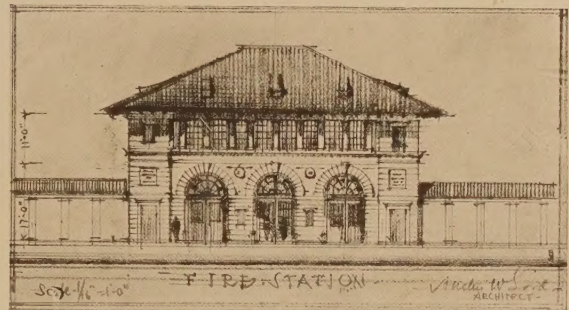
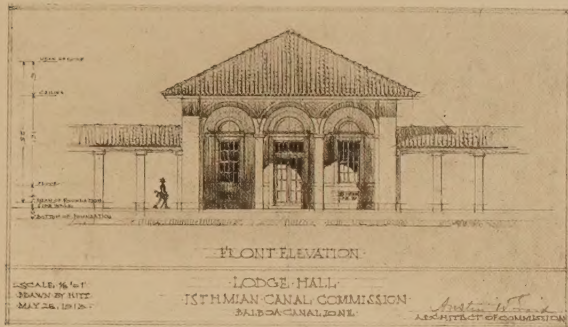


SCHOOL, BOWLING ALLEY, ELEVATION AND PLAN, BARRACKS FOR BLACKS, BALBOA, C. Z.

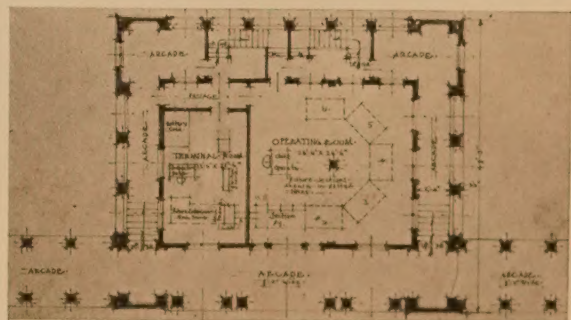
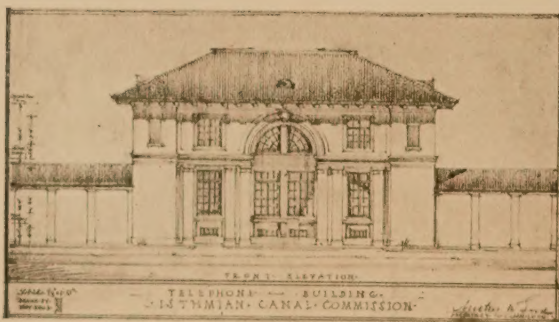
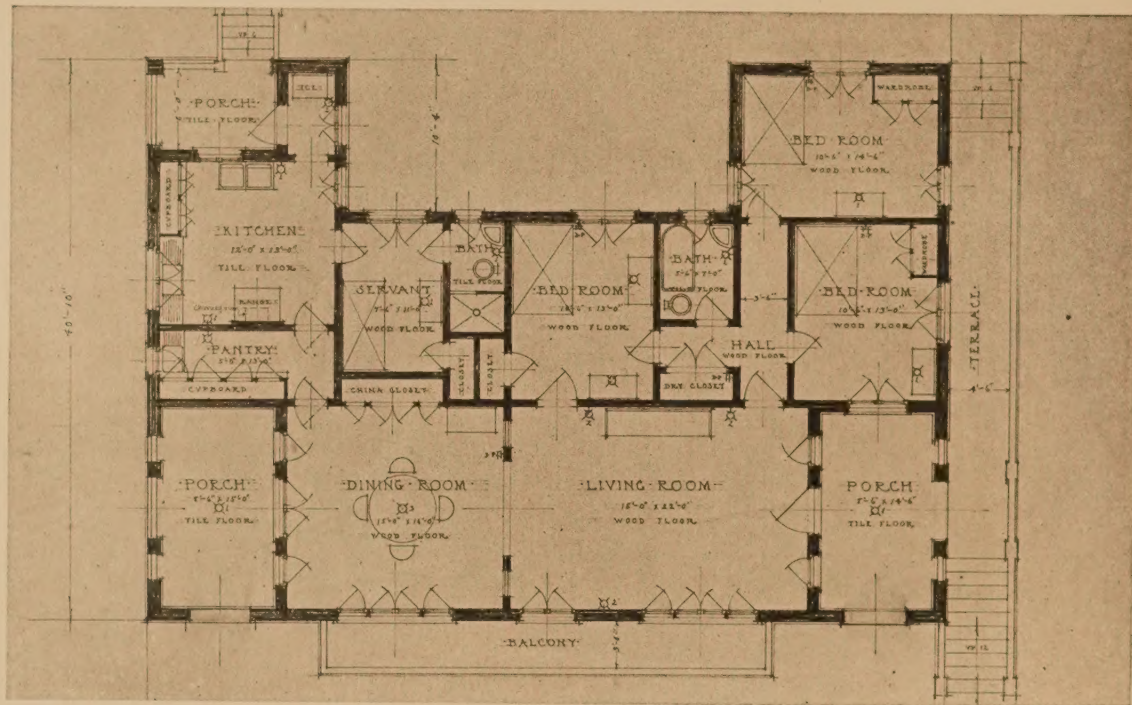
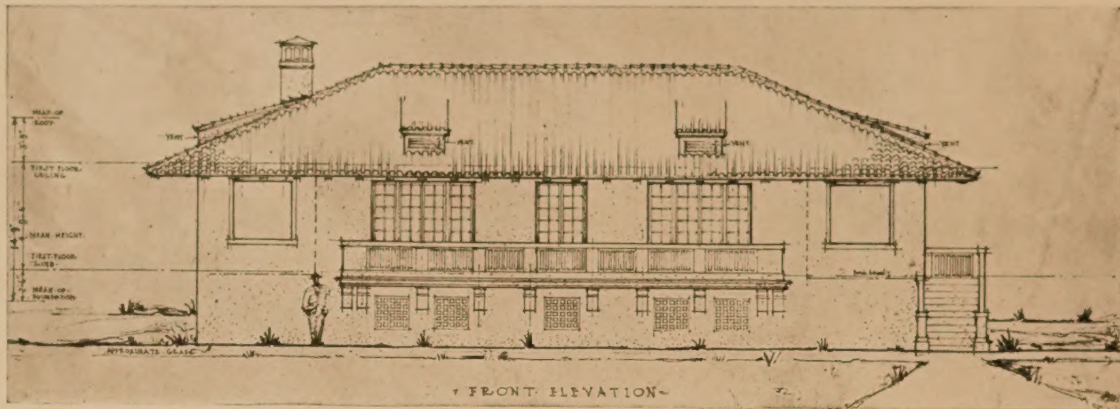
Austin W. Lord, Architect.

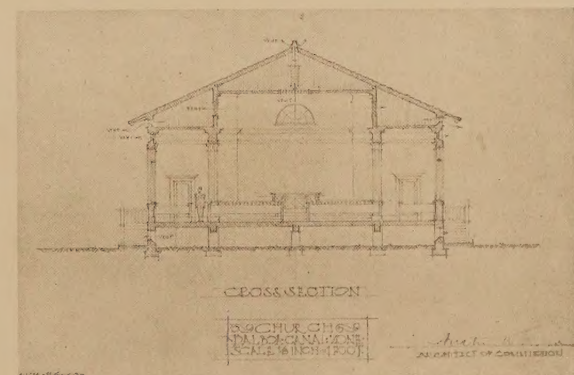
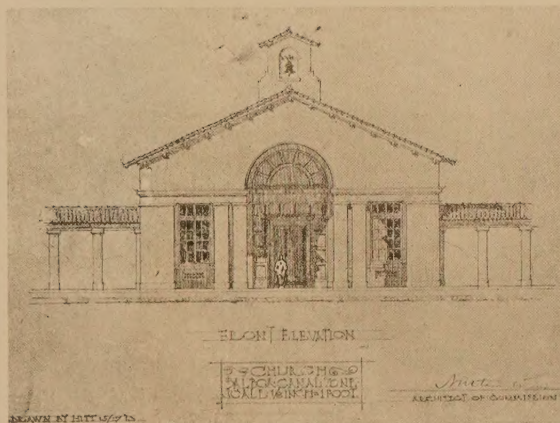
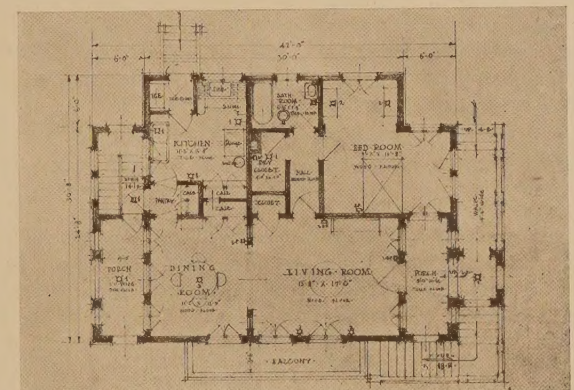
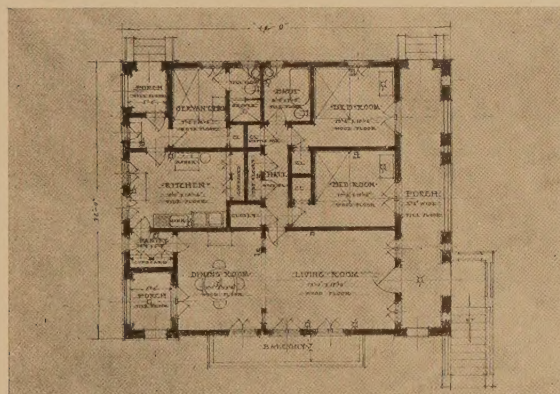
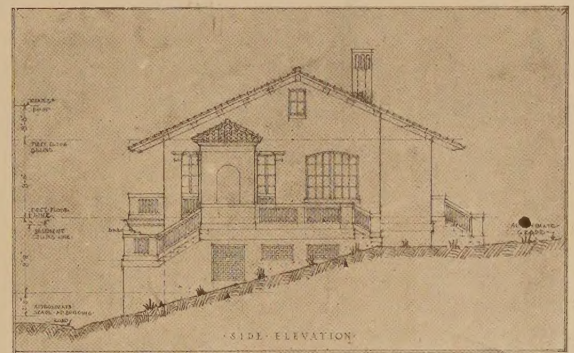
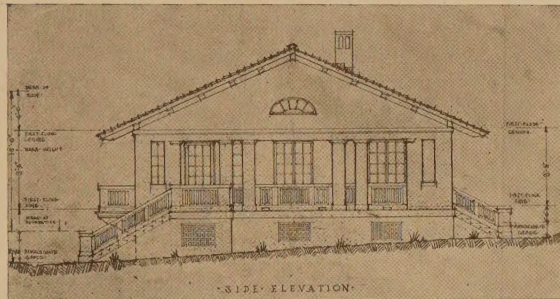
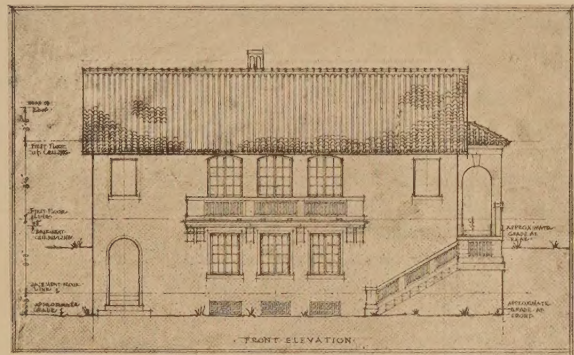
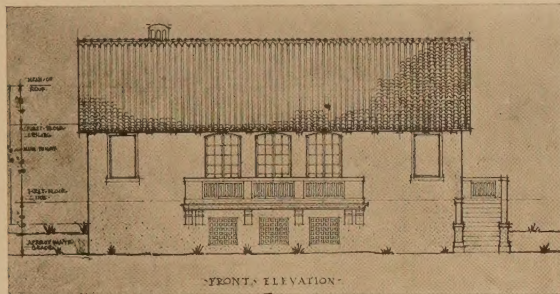


ELEVATIONS AND PLANS, TWO-FAMILY HOUSE (\$7,000), MARRIED LABORERS' QUARTERS AND RESTAURANT, BALBOA, C. Z.
Austin W. Lord, Architect.



ELEVATION AND PLANS, LODGE HALL, FIRE STATION, BACHELORS' QUARTERS AND COMMISSARY BUILDING, BALBOA, C. Z.
Austin W. Lord, Architect.





(Continued from page 101)

requirements of the house seem to lend itself to that style. The plans show a large living room and dining room, with a reception hall connecting the two, the staircase hall being placed at the center. The kitchen and servants' quarters are in a separate wing.

The buildings above referred to are intended to accommodate the official and clerical forces and all white help to be employed in the operation of the locks and the great railroad terminal and repair shops at Balboa. Quarters of this character for about 1500 men will have to be provided.

The west Breakwater Light and Fog Signal, or what is commonly known as the Toro Point Light, is situated at the end of the breakwater extending about two miles into Colon Harbor and is designed practically as a three story structure. In the lower story, which is about three feet above mean sea level, provision is made for cisterns for fresh water, pump room and cellar. In the second story is the engine room with its air compressor and air pressure tanks; and in the third story the living quarters, composed of two bedrooms, a bath, mess room and pantry.

The line of focal plane is 60 feet above the mean sea level. At this point is provided—at practically the fourth story of the structure—an open balcony, the watch room being immediately underneath. It will be noted that the machine room is protected from the sun by a surrounding portico. Precedent led to the desirability of making this building round, but owing to the excessive cost of construction the polygonal shape was adopted.

The new town of Balboa has been laid out on the great fill between Sosa and Ancon Hills; the principal service buildings, bordering on a wide avenue, comprise among others a post office, court house and jail, commissary department, club house, bowling alley, telephone and telegraph station, school house, hall for religious meetings and a building for the use of secret societies, etc., all of which are designed to have colonnaded fronts and connecting colonnades giving a continuous covered way from one end of the street to the other.

At the head of this avenue and about eighty feet above it on one of the low spurs of Ancon Hill is situated the Administration Building. At the other end of the street there is a plaza with bachelor and family quarters grouped on the low spurs of Sosa Hill. Back of the Administration Building, and at a higher level, are grouped eight official quarters and in the immediate neighborhood the additional quarters for the clerical force employed in the Administration Building. Of this entire group of buildings the Administration Building is by far the largest and most important; it is planned with a great court to the north—the south, east, and west fronts having a two story colonnade. Sixty thousand feet of available office space is provided for the housing of the official and clerical staffs.

The service buildings and the Administration Building, like the quarters, are to be constructed of hollow concrete block finished in stucco, with American tile roofs and concrete and patent floors. The woodwork, including the doors, door frames, window frames, etc., are to be constructed of mahogany.

At Pedro Miguel another town will be built, together with quarters for heads of departments and the laborers who will maintain the locks at Pedro Miguel and Miraflores.

There will also be a repetition of these structures at Gatun to house the force that will care for the Gatun Locks.

The service buildings of Pedro Miguel and Gatun will, in all probability, be smaller in scale than those at Balboa, owing to the fact that a smaller force of men will be maintained at the two latter places.

It is proposed further to build new quarters for the insane; and to provide the necessary buildings for the maintenance of the Hospital Farm. Quarters will also be provided south of Sosa Hill for the black help employed at the great Balboa ship and railway terminal. These quarters are systematically disposed around a great court with all modern sanitary conveniences and recreation spaces.

A NATION produces the architecture it deserves, and if in the main it is materialistic and sordid, we shall find all material qualities considered first and the moral and spiritual ones scarcely at all. Greed will crush out generosity and shams will smother poetry and sentiment. Men will prefer the imitation grandiose to simplicity and dignity. Things will not be what they seem. Bodily comfort and luxurious enjoyment will be valued above grace and refinement. Indeed, the modern materialist will not admit there can be any moral qualities suggested or conveyed by architecture. He sees no harm in jointing his stucco to imitate stone construction. So it is we see what we look for.

O UR chief trouble is in combating the greedy who, wanting things to look better than they are, ask us to strive for an effect of richness without themselves incurring the cost of real richness. We need all our tact to preserve our integrity with such people. But it can be done, and must be done.

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